VPX777

Intel® Ice Lake-D Processor Xeon® D-2896TER with 1/10/40/100GbE and PCIe, 3U VPX

VPX777

Key Features

- Intel® Ice Lake-D Xeon® D-2396TER
  - 20 Core (40 Threads)
- 100/40GbE or octal 10/1GbE on P1
- PCIe x8 Gen 4 on P1
- 1000BASE-T on P1
- Dual 10GbE/GbE on P1
- PCIe x16 Gen 4 on P2
- USB and RS-232 on P1/P2
- 64 GB of DDR4 memory with ECC
- 128 GB SSD
- Serial Over Lan (SOL)
- Platform Firmware Resilience (PFR) via on board FPGA for security
- Trusted Platform Management (TPM)

Benefits

- Ice Lake-D embedded hardware security features, AI capability, enhanced connectivity and fast boot
- Low power for balanced performance and power
- Ideal upgrade for Broadwell-DE (such as VPX754)
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company

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VPX777

The VPX777 is a 3U Form Factor Processor VPX (PrVPX) module powered by the 20-core (40-thread) Intel® Xeon® D-2896TER (Ice Lake-D) processor for demanding embedded applications. It features four channels of DDR4 memory, 64 GB of ECC RAM, and a 128 GB SSD. The BIOS supports booting via onboard SSD, PXE, or USB.

The P1 connector provides:

- Single 100/40GbE (or quad 10/1GbE)
- PCIe x8 Gen 4 (bifurcated to dual x4)
- 1000BASE-T
- Dual 10/1GbE

The P2 connector routes a PCIe x16 Gen 4 interface, which can be bifurcated to quad x4 or dual x8. Both P1 and P2 support USB 2.0 and RS-232.

For security, the module combines a Trusted Platform Module (TPM) with Intel® Boot Guard and Platform Firmware Resilience (PFR) on an onboard FPGA, which customers can reprogram for tailored security. The board complies with VITA 65 slot profile SLT3-PAY-1F2F1TP2U1QF and ships with Linux OS standard.

Due to a power dissipation of ~150W, appropriate system-level cooling is required; consult VadaTech sales for thermal management guidance

Figure A: VPX777

Figure C: VPX777 Top View

Figure B: VPX777 Front View

Block Diagram

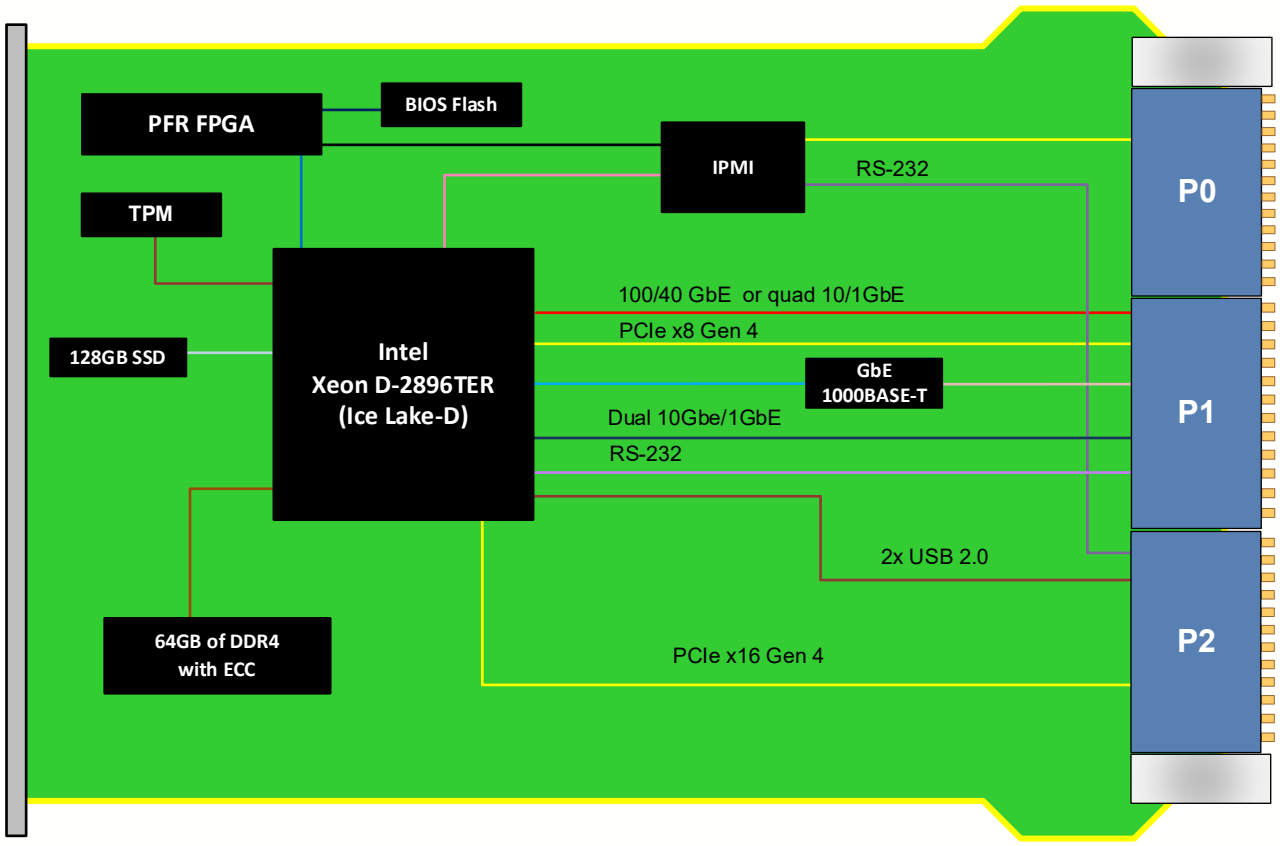

Figure 1: VPX777 Functional Block Diagram

Figure D: VPX777 Front Panel View

Pinout Block Diagram

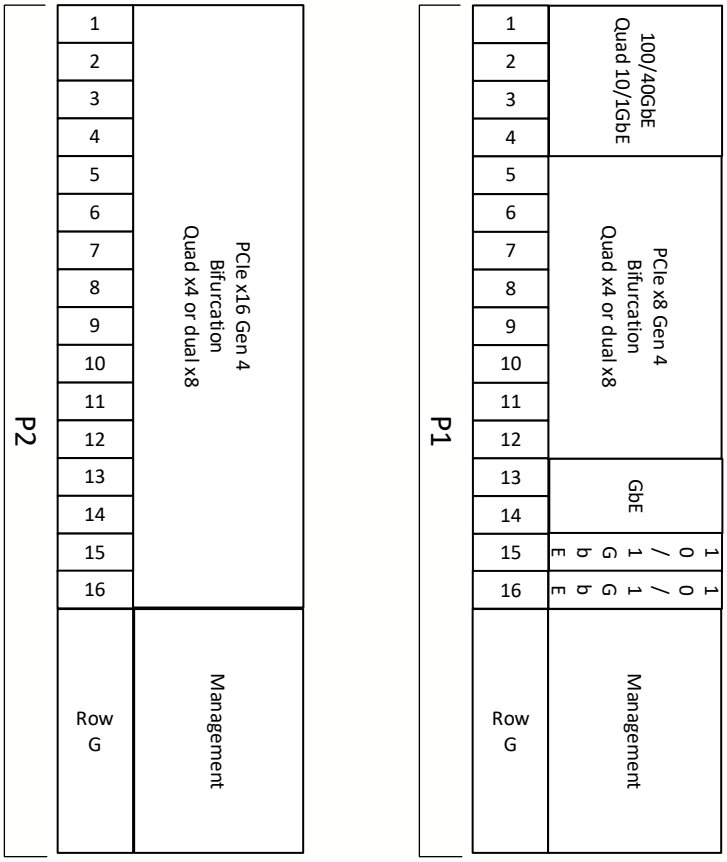

Figure 2: VPX777 Pinout Block Diagram

Specifications

Architecture		
Physical	**Dimensions**	3U, 1” Pitch
Configuration		
Power	**VPX777**	~150W
Processor	**CPU**	Intel® Ice Lake-D Xeon® D-2896TER
	Memory	DDR4 64 GB with ECC
	Storage	SSD 128 GB
	Lanes	100/40GbE or quad 10/1GbE; PCIe x8 and PCIe x16 Gen4
VPX Interfaces	**Slot Profiles**	See Ordering Options
	Payload Profile	See Figure 2
	Power Supplies	On P0: +12V and +3.3V_AUX
Front Panel	**Interface Connectors**	None
	LEDs	IPMI, activity and user defined
	Mechanical	3U VPX
Software Support	**Operating System**	Linux, Windows and VxWorks (consult VadaTech for other options)
Other		
MTBF	MIL Hand book 217-F@ TBD hrs	
Certifications	Designed to meet FCC, CE and UL certifications, where applicable	
Standards	VadaTech is certified to both the ISO9001:2015 and AS9100D standards	
Warranty	Two (2) years, see VadaTech Terms and Conditions	

INTEGRATION SERVICES AND APPLICATION-READY PLATFORMS

VadaTech has a full ecosystem of OpenVPX, ATCA and MTCA products including chassis platforms, shelf managers, AMC modules, Switch and Payload Boards, Rear Transition Modules (RTMs), Power Modules, and more. The company also offers integration services as well as pre-configured Application-Ready Platforms. Please contact VadaTech Sales for more information.

Ordering Options

VPX777 – AB0-D00-GHJ

A = DDR4 Memory	D = CPU	G = Applicable Slot Profile
0 = 64 GB 1 = Reserved	0 = D-2896TER 1 = D-2832NT 2 = Reserved	0 = 1", VITA 48.1 (option H = 0/1) 1 = 2", VITA 48.1 (option H = 0/1) 2 = 1", VITA 48.5 (option H = 2/3/4) 3 = 1.4" VITA 48.5 (option H = 2/3/4) 4 = 1", VITA 48.7 (option H = 0/1) 5 = 1.2", VITA 48.7 (option H = 0/1) 6 = 1", VITA 48.1 (option H = 2/3/4)*
B = Storage		**H = Environmental**
0 = None 1 = 128 GB SSD 2 = Reserved		See Environmental Specification
		J = Conformal Coating
		0 = No coating 1 = Humiseal 1A33 Polyurethane 2 = Humiseal 1B31 Acrylic 3 = Parylene

*Note: The overall system must be able to keep the wedge at operating temperature. Consult VadaTech.

Environmental Specification

	Air Cooled		Conduction Cooled		
Option H	**H = 0**	**H = 1**	**H = 2**	**H = 3**	**H = 4**
Operating Temperature	AC1* (0°C to +55°C)	AC3* (-40°C to +70°C)	CC1* (0°C to +55°C)	CC3* (-40°C to +70°C)	CC4* (-40°C to +85°C)
Storage Temperature	C1* (-40°C to +85°C)	C3* (-50°C to +100°C)	C1* (-40°C to +85°C)	C3* (-50°C to +100°C)	C3* (-50°C to +100°C)
Operating Vibration	V2* (0.04 g2/Hz max)	V2* (0.04 g2/Hz max)	V3* (0.1 g2/Hz max)	V3* (0.1 g2/Hz max)	V3 (0.1 g2/Hz max)
Storage Vibration	OS1* (20g)	OS1* (20g)	OS2* (40g)	OS2* (40g)	OS2* (40g)
Humidity	95% non-condensing	95% non-condensing	95% non-condensing	95% non-condensing	95% non-condensing

Notes:

*Nomenclature per ANSI/VITA 47. Contact local sales office for conduction cooled (H = 2, 3, 4).

Related Products

VPX516

- 3U FPGA carrier for FPGA Mezzanine Card (FMC) per VITA 46 and VITA 57
- Xilinx Virtex-7 690T FPGA in FFG-1761 package
- High-performance clock jitter cleaner

VPX592

- 3U FPGA carrier for FMC per VITA 46 and VITA 57
- Xilinx Kintex UltraScale™ XCKU115 FPGA
- High-performance clock jitter cleaner

VPX599

- Xilinx Kintex UltraScale™ XCKU115 FPGA
- Dual ADC 12-bit @ 6.4 GSPS
- Dual DAC 16-bit @ 12 GSPS (AD9162 or AD9164)

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